if the destination code is assigned a location, sensing the item at a pick-up point and loading the item in a container at the assigned location;

if the destination code is not assigned a location, determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations and the projected or historical number of items having the same destination code.

REMARKS

Claims 1-23 are pending in the application. The Applicant is amending the specification to address minor typographical errors. Claims 9, 15, and 18 are amended. Claims 24 and 25 are added. Reexamination and reconsideration of the claims in view of the amendments made and remarks contained herein are respectfully requested.

The Office rejected claims 9-14 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Office asserted "in claim 9, the phrase 'capable of' is vague and indefinite since it only points out what the invention is 'capable' of accomplishing, rather than what it actually does." The Applicant has amended independent claim 9 to address the Office's rejection. Accordingly, the Applicant respectfully requests withdrawal of the rejection.

The Office rejected claims 15 and 18-23 under 35 U.S.C. § 102 as being anticipated by Jones et al. (U.S. Patent No. 6,227,378). Amended independent claim 15 specifies, among other things, a method of sorting a plurality of items by destination in a robotic system, the method comprising defining a plurality of locations in a robotic cell, where each location is a position for a container; reading a destination code from each of the plurality of items; determining whether the destination code is assigned a location; and if the destination code is assigned a location, picking-up the item and loading the item in a container at the assigned location (emphasis added).

Jones et al. do not teach a method of sorting a plurality of items by destination in a robotic system and defining a plurality of locations in a robotic cell, where each location is a position for a container. Rather, Jones et al. teach a carousel system 2 including storage receptacles 4 that rotate under mail feeds and output receptacles 12. The output receptacles 12 receive mail items from the storage receptacles 4. The output receptacles 12 are not assigned or positioned in a particular defined location in the carousel system 2, although at least some of the output receptacles may be designated to receive pieces of mail having a

common characteristic, such as a zip code. The output receptacles 12 are positioned beneath the rotating storage receptacles 4 in no particular order or specified location. In fact, as indicated in Col. 4, lines 44-54, it is only after many pieces of mail have been collected in storage receptacles 4 that the mail is then placed in an output receptacle, and the placement of mail in an output receptacle is based more on availability and other factors, not on location. *See Col. 5, lines 45-63*. Of course, the Jones et al. invention operates differently, in part, because it is a carousel system, not a robotic cell. Therefore, Jones et al. do not teach the elements of claim 15. Accordingly, independent claim 15 is allowable. Of course, since claims 18-23 depend from claim 15, they are allowable for the same reasons set forth above with respect to claim 15. Nonetheless, the Applicant notes the following.

First, it is respectfully submitted that the Office has failed to meet its burden of establishing a prima facie case of anticipation. No where does the Office action provide a correlation between the Jones et al. reference and the elements of claims 18-23. The Applicant respectfully requests that the Office specifically point out where these claimed elements are shown in the Jones et al. reference or withdraw the rejection.

Second, it is Applicant's position that it is impossible for the Office to meet its burden of establishing a prima facie case of anticipation or obviousness because Jones et al. do not teach the subject matter recited in claims 18-23. Jones et al. do not teach recirculating an item when a determination is made not to assign the destination code a location in the robotic cell as indicated in claim 18, rejecting an item as indicated in claim 19, and reviewing a set of restrictions as indicated in claims 20-23. Therefore, claims 18-23 contain additional patentable subject matter.

The Office rejected claims 1-14 and 16-17 under 35 U.S.C. § 103 as unpatentable over Jones et al. in view of Okada et al. (U.S. Patent No. 6,076,683). Independent claim 1 specifies a method of sorting a plurality of items by destination, the method comprising defining a number of locations, where each location is a position for a container; assigning each location a speed of loading rating; creating a scheme of destinations; reading a destination code from each of the plurality of items; determining whether the destination code is assigned a location; if the destination code is assigned a location, loading the item in a container at the assigned location; if the destination code is not assigned a location, determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations, the projected or historical number of items having the same destination code, and the speed of loading rating for each location. For the reasons set forth above with respect to claim 15, Jones et al. do not teach or suggest defining

a number of locations, where each location is a position for a container. Jones et al. also do not teach or suggest assigning each location a speed of loading rating. Of course, speed of loading with respect to a carousel system is mostly irrelevant in a carousel system where the carousel is generally rotating at a constant speed and distances to loading points are generally equidistant. Furthermore, the Office recognized that Jones et al. do not disclose a speed of loading rating. *See* page 3 of the August 2, 2002 Office action.

Okada et al. do not cure the deficiencies of Jones et al. Okada et al. teach a conveyor system including an orienting apparatus 10 to arrange articles in a single file configuration. The conveyor system also includes conveyors 4 and 5 to create a minimum spacing between adjacent articles. A reading/sensing mechanism 12 downstream of conveyors 4 and 5 verifies that the articles are properly spaced. If a minimum space is not detected, a diverter 26 is activated to divert the article to a recirculation conveyor 24. The articles that are properly spaced are transmitted to branch lines 16-18. Nothing in the Okada et al. reference teaches or suggests defining a number of locations, where each location is a position for a container; creating a scheme of destinations; determining whether the destination code is assigned a location; if the destination code is assigned a location, loading the item in a container at the assigned location; if the destination code is not assigned a location, determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations, the projected or historical number of items having the same destination code, and the speed of loading rating for each location.

Okada et al. also do not teach or suggest assigning each location a speed of loading rating. The Office indicates that Okada et al. teach assigning each location a speed of loading rating because the numerals "15 and 30 represent the time needed to move from a position detector 15 to the locations 16-18." However, the purpose of the sensor 15 is to verify that a proper interval exists between successive articles. Once the articles bypass the recirculation conveyor 24, the time it takes an article to reach its final destination is not discussed in the reference. Furthermore, the timer 30 and its function are also not discussed in the reference. Nor is there any discussion related to how fast an article may be picked up and loaded to a desired location. Thus, there is nothing that indicates that the locations 16-18 are assigned a speed of loading rating. Therefore, Okada et al. do not teach or suggest the elements of claim 1.

Even if Okada et al. taught assigning a speed of loading rating, there is no suggestion or motivation to combine the teachings of the references. The Jones et al. reference discloses a carousel system with equidistant points and no need for a speed of loading rating.

Furthermore, the Jones et al. invention would not work with multiple conveyors and diverters. In addition, there is no suggestion to include the sensors from Okada et al. into the Jones et al. invention to verify proper spacing between mail items, as proper spacing is already determined by the storage receptacles. For these reasons, there is no suggestion or motivation to combine the teachings of Jones et al. and Okada et al. Accordingly, independent claim 1 is allowable.

Claims 2-8 depend from claim 1, and are therefore allowable for the reasons set forth above with respect to claim 1. Nonetheless the Applicant notes that the Office has not provided any correlation between the Jones et al. and Okada et al. references and the elements of claims 2-8. Therefore, the Applicant respectfully requests that the Office specifically point out where these claimed elements are shown in the Jones et al. and Okada et al. references or withdraw the rejection.

Further, the Applicant has reviewed the teachings of Jones et al. and Okada et al. and submits that no prima facie case of obviousness with respect to the subject matter of claims 3-8 can be made based upon them. Jones et al. and Okada et al. do not teach rejecting an item when a determination is made not to assign the destination code a location as indicated in claim 3, reviewing a set of restrictions as indicated in claims 5-7, and tracking the number of items in recirculation as indicated in claim 8. Therefore, claims 3-8 contain additional patentable subject matter.

Independent claim 9 specifies a dynamic sortation system comprising, among other things, a cell having a plurality of locations, each location defining a position for a container and having a speed of loading rating; a sort scheme module capable of generating a database and storing a scheme of destinations; a controller coupled in data communication with the sort scheme module; and an item reader coupled in data communication with the controller and capable of reading a destination code from each of a plurality of items. The sort scheme module is capable of determining whether a read destination code is assigned a location in the cell, and if the destination code is assigned a location, generating an instruction to load the item in a container at the assigned location, and if the destination code is not assigned a location, determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations and the projected or historical number of items having the same destination code.

The Office has not provided any correlation between the Jones et al. and Okada et al. references and the elements of claims 9-14. Therefore, the Applicant respectfully requests that the Office specifically point out where these claimed elements are shown in the Jones et

al. and Okada et al. references or withdraw the rejection. Further, claims 9-14 are patentable for reasons and the failings of the cited references discussed above.

More particularly, Jones et al. and Okada et al. do not teach a cell having a plurality of locations, each location defining a position for a container and having a speed of loading rating. Therefore, independent claim 9 is allowable. Claim 10 depends from claim 9, and is therefore allowable for the reasons set forth above with respect to claim 9. Claim 10 specifies a dynamic sortation system wherein the sort scheme module determines whether to assign the destination code a location based on the speed of loading rating for each location. Both Jones et al. and Okada et al. do not teach or suggest the elements of claim 10 for the reasons set forth above with respect to claim 1. Therefore, claim 10 contains additional patentable subject matter.

Claim 11 depends from claim 9, and is therefore allowable for the reasons set forth above with respect to claim 9. Claim 11 specifies a dynamic sortation system wherein each cell is divided into at least two zones. Both Jones et al. and Okada et al. do not teach cells and zones. Therefore, claim 11 contains additional patentable subject matter.

Claim 16 depends from claim 15, and is therefore allowable for the reasons set forth above with respect to claim 15. Claim 16 specifies a method of sorting a plurality of items by destination further comprising assigning each location a speed of loading rating. For the reasons set forth above with respect to claims 1 and 9, Jones et al. and Okada et al. do not teach or suggest the elements of claim 16. Therefore, claim 16 contains additional patentable subject matter.

Claim 17 depends from claims 15 and 16, and is therefore allowable for the reasons set forth above with respect to those claims. Further, claim 17 specifies a method of sorting a plurality of items by destination wherein determining whether to assign the destination code a location is also based on the speed of loading rating for each location. For the reasons set forth above with respect to claims 1 and 9, Jones et al. and Okada et al. do not teach or suggest the elements of claim 17. Therefore, claim 17 contains additional patentable subject matter.

New claim 24 specifies a method of sorting a plurality of items by destination in a robotic system, the method comprising defining a plurality of locations in a robotic cell, where each location is a position for a container; creating a scheme of destinations; reading a destination code from each of the plurality of items; determining whether the destination code is assigned a location; if the destination code is assigned a location, loading the item in a container at the assigned location; if the destination code is not assigned a location,

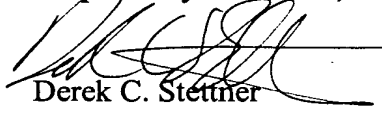
determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations and the projected number of items having the same destination code. Jones et al. and Okada et al. do not teach or suggest, among other things, a method of sorting a plurality of items by destination in a robotic system, and defining a plurality of locations in a robotic cell, where each location is a position for a container. Accordingly, claim 24 is allowable.

New claim 25 specifies a method of sorting a plurality of items by destination in a robot system, the method comprising defining a plurality of locations in a robotic cell, where each location is a position for a container; creating a scheme of destinations; reading a destination code from each of the plurality of items; determining whether the destination code is assigned a location; if the destination code is assigned a location, sensing the item at a pick-up point and loading the item in a container at the assigned location; if the destination code is not assigned a location, determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations and the projected or historical number of items having the same destination code. Jones et al. and Okada et al. do not teach or suggest, among other things, a method of sorting a plurality of items by destination in a robotic system, defining a plurality of locations in a robotic cell, where each location is a position for a container, and if the destination code is assigned a location, sensing the item at a pick-up point and loading the item in a container at the assigned location. Accordingly, claim 25 is allowable.

CONCLUSION

Accordingly, allowance of claims 1-25 is respectfully requested. Applicant is providing a marked-up version of the amended claims and specification to the end of this Amendment. The undersigned is available for telephone consultation during normal business hours.

Respectfully submitted,



Derek C. Stettner
Reg. No. 37,945

Docket No.: 010323-9004
Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Milwaukee, Wisconsin 53202-4108
(414) 271-6560

AMENDED SPECIFICATION
MARKED-UP VERSION

On page 1, delete the paragraph beginning at line 2 and replace it with the following:

--

This application is [a] related to application no. 09/521,989 filed on March 9, 2000, the entire contents of which are hereby incorporated by reference herein. Application no. 09/521,989 claims the benefit of provisional application no. 60/124,427 filed on March 15, 1999.

--

On page 5, delete the paragraph beginning at line 9 and replace it with the following:

--

A containerization and palletizing system 30 is shown in FIG. 1. The system 30 includes two cells 32 and 34 each equipped with a gantry or overhead-type robot 36. Although not shown, the invention may be implemented with just one cell and one robot as well as other types of robots. Each cell 32, 34 has a frame 38 which may be secured to a hard surface such as a concrete floor 40. The space between the frame members may be enclosed with a perimeter fence 42, a mesh, a similar material, or even other types of walls. One or more gates or doors 44 may be provided to permit access to the interior of the cell. Each cell 32, 34 has a plurality of locations or bays 46 for pallets 49 and carts 50. Sensors (not shown) sense the presence or absence of pallets [48] 49 and carts 50 (generically referred to as [a] "containers") in a bay and that information is communicated to a system controller 55. The system controller 55 includes a sort scheme module 56 (FIG. 2). The sort scheme module 56 can accept a sort scheme 57 as input or generate the presently programmed sort scheme as output in the form of a printed form or an image on a display (not shown). The system controller 55 also includes a database module 58 that includes a database of destination assignments for the system. The database module 58 also receives destination codes or, more broadly, item identifiers as read by item reader (discussed below) through a controller interface 59. The controller interface 59 may be a software-based programmable logic controller. The controller interface 59 receives input position data from a conveyor system (discussed below) and container present information from the docking stations or bays 46 in the system 30. Container identifying information is read and supplied to the database module 58. Location information, such as destination assignments for containers in the bays 46, is transferred from the database module to the robot controllers (discussed below) and the controller interface 59.

--

On page 6, delete the paragraph beginning at line 17 and replace it with:

--

In the embodiment described herein, each cell [32/34] 32, 34 is divided into two zones Z_1 and Z_2 (FIGS. 3, 4, and 5) and each door 44 provides access to a zone. For the embodiment shown in FIG. 4, the cell 32 is divided into zone Z_1 with locations 119, 121, and 123 and zone Z_2 with locations 113, 115, and 117. Cell 34 is divided into zone Z_1 with locations 107, 109, and 111 and zone Z_2 with locations 101, 103, and 105. The embodiment shown in FIG. 5 is similarly configured. Cell 32 of FIG. 5 has zones Z_1 and Z_2 and locations 13-24. Cell 34 of FIG. 5 has zones Z_1 and Z_2 and locations 1-12.

--

On page 11, delete the paragraph beginning at line 16 and replace it with the following:

--

If a determination is made not to assign a read destination code to a location the item may be recirculated by directing it to paths P_1 or P_2. The item may be kept in the recirculation path until additional items having the same destination code are read. When a predetermined number of items having the same destination are read, then the system may assign a location for that destination and load those items in a container at the location. Alternatively, when a determination is made not to assign a read destination code a location, items may be rejected, by removing them from the conveyor system using, for example, an automated kick plate to push the items to a rejection bin.

--

AMENDED CLAIMS
MARKED-UP VERSION

9. (Amended) A dynamic sortation system comprising:

a cell having a plurality of locations, each location defining a position for a container and having a speed of loading rating;

a sort scheme module [capable of generating] operable to generate a database and storing a scheme of destinations;

a controller coupled in data communication with the sort scheme module; and

an item reader coupled in data communication with the controller and [capable of reading] operable to read a destination code from each of a plurality of items,

wherein, the sort scheme module is [capable of determining] operable to determine whether a read destination code is assigned a location in the cell, and if the destination code is assigned a location, generating an instruction to load the item in a container at the assigned location, and if the destination code is not assigned a location, determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations and the projected or historical number of items having the same destination code.

15. (Amended) A method of sorting a plurality of items by destination in a robotic system, the method comprising:

defining a [number] plurality of locations in a robotic cell, where each location is a position for a container;

creating a scheme of destinations;

reading a destination code from each of the plurality of items;

determining whether the destination code is assigned a location;

if the destination code is assigned a location, picking-up the item and loading the item in a container at the assigned location;

if the destination code is not assigned a location, determining whether to assign the destination code a location based on whether the destination code is in the scheme of destinations and the [projected or] historical number of items having the same destination code.

18. (Amended) A method as claimed in claim 15, further comprising:

recirculating an item when a determination is made not to assign the destination code a location in the robotic cell.

T:\CLIENTA\010323\9004\A0424118.1